



Dr. Jill Carnahan - 00:00

Hey everybody. Welcome to Resiliency Radio, your go to podcast for the most cutting edge insights integrative and functional medicine. I'm your host, Dr. Jill and with each episode we dive into the heart of healing and personal transformation. Join me as I interview medical experts, world leaders and biohackers of all types to help you optimize your performance and longevity.



Dr. Pejman Katiraei - 00:24

Today.



Dr. Jill Carnahan - 00:24

You are going to love this episode with Dr. King. What if the hidden root of your child's anxiety, behavioral disorders, learning struggles wasn't psychological but biological? Today's guest reveals how the gut microbiome, fungal dysbiosis, mast cell disorders can contribute to your child's mood disorders, behavioral issues or other learning disabilities. And I know you're not going to want to miss this episode with Dr. K. I will introduce him in just a moment, but before I do, I just want to remind you, number one, if you haven't yet subscribed, I hope you'll join over 600,000 subscribers that we currently have. Just click that subscribe button and click the bell to be notified of future episodes. Also, if you haven't been around or heard, I have a slew of wonderful products for your health, for your beauty, for your optimization of performance.



Dr. Jill Carnahan - 01:17

You can find them all@doctor Jill health.com it's Dr. Jill health.com and you can sign up for our newsletter and discounts there. We have solutions for mast cell disorders, for gut dysbiosis, for gut healing, food sensitivities, for Epstein Barr, and anything you can imagine, even overall just immune function. One of our best sellers is Immune Essentials and you can find that and more@doctor Jill health.com be sure and check it out. Okay, without further ado, I want to introduce our guest today. Our guest, Dr. Pedman. Dr. K, he goes by, is a board certified pediatrician who completed his undergraduate at UCLA and obtained his osteopathic medical degree at Western University. He completed a pediatric residency at Loma Linda University where he stayed on his teaching facility for over four years.



Dr. Jill Carnahan - 02:08

He also completed two fellowships integrative Medicine and has over a decade of clinical experience helping children with severe learning and behavioral challenges. You will love his demeanor, his wisdom and his knowledge. And if you have a child in your life or know someone who does with difficult gut issues, you are going to want to stay tuned. This is one of my favorite episodes and one of my favorite interviews. So without further ado, let's do join Dr. K. Dr. K. I'm so excited to have you back. We both swim in the same circles with the ICI and the eyelids and complex chronic conditions. And you have the clinic holistic kids and the website holistickids.com I always really enjoy talking to you because so often the future of our nation and everything relies on our kids.



Dr. Jill Carnahan - 02:56

And I think more than ever before, we're seeing a lot of the complex chronic stuff we used to see only in adults, in kids, more than ever. And it's just a really important area. Before we dive into that, tell us just a little about you. How did you get into medicine and pediatrics? And then how did you get into dealing with some of the most complex

cases in.



Dr. Pejman Katiraei - 03:17

I guess you could say early on, as this little budding student in college, I like science, I liked helping people. So I thought, well, gosh, that medicine is a decent way to do both. When I started school, I actually came to dislike medicine so much. And I mean, as a medical student, you have no idea why you're feeling so resistant to it. But ultimately I was actually thinking of going into business administration and leaving medicine altogether. Until I did my first pediatrics rotation, I had no clue at all that I liked kids in any way, shape or form. But then when I interacted with the kids, there were like little ponies flying around, you know, rainbows started popping up. And like, my second day of pediatric rotation, I was sick as a dog.



Dr. Pejman Katiraei - 04:08

I had a 104 fever, was feeling like I was about to fall over, but I was still in love with these little people and God, 16, I guess, plus years more, geez, years later, 18 years later, I still adore these kids and every interaction with them I have is magical. Functional medicine, really. I'm sure with you, the more you look at medicine, the more we realize how many things it cannot answer, right? And the more you look at things and ask questions of like, well, why does this happen? Why does that happen? Why do these things come about? And everything's like, well, we don't know. But no one else has the answer either. And it's like, well, how is that possible, right?



Dr. Pejman Katiraei - 04:54

So for me, functional medicine, integrative medicine, all of these different modalities as really just opening the door and creating space for new information and treatments to show up. And you know, I, I tell all of our families, for medicine is just medicine. Healing is just healing. It's, it's a matter of can you look at enough problems in enough different ways and find the best tools, you know, whether it's pharmaceuticals or supplements or botanicals, you know, with no bias to help. And I kind of look at it as I try to take on an engineer's mindset. Engineers have no attachment to what they do. Science is science. It's either something works or it doesn't. It's either you have a good explanation for why something is happening or you don't.



Dr. Pejman Katiraei - 05:43

And if anything, I try to disprove myself every six months or so and try to update my understanding and my approach as often as possible. And a lot of that really comes actually from my families. And you know, they show up with something, they're like, what do you think about this? I'm like, God, that's a frigging great idea. I hadn't thought about it. And you know, through them and obviously learning and reading, you know, papers and attending conferences, the goal is always to push yourself, right? And what you thought you knew to try to disprove and come up with a better way of understanding things. So that to me is kind of where functional integrative medicine comes in.



Dr. Jill Carnahan - 06:25

Gosh, I love your description of that. First of all, the kids, because there is such a joy and purity, there's no filter, right? It's before we have the filter. And I think maybe that was part of your delight, who knows? But in seeing these kids because they just say what they want to say.



Dr. Pejman Katiraei - 06:39

There's no.



Dr. Jill Carnahan - 06:40

And there's such a freedom and joy to see that expressed before they've been, you know, the world has shut them down or whatever else has happened. And you get the bonus of dealing with the parents too, which often is an absolute joy, but complicates things. So what a great area. And like I said, I think there's maybe no more important area of medicine than pediatrics because we're changing the future of our, you know, society through the kids and through their health. And we also see these patterns that we're going to talk about today that manifest in the kids, you know, and even talking. I had did an interview recently with Anne Shippy about fertility and conception. And it starts with the parents and their lifestyle and their genetics and that thing. And then of course, this passes down in generations.



Dr. Jill Carnahan - 07:24

And today our topic is autism, mold and the microbiome. And that opens up a lot of doors for us to talk about. I really loved how you expressed the engineering mindset because I feel like the best clinicians are just open minded and curious. And so often the ones that patients come and complain about are the ones that after medical school thought they learned everything they needed to know. And once they walked out those doors with a degree they. That's it. Right. And the opposite. You and I are always like, oh, really? And just like you, I so often have a patient come in and share a new study or a new protocol or a new thing. I'm like, really? Tell me more. And then I dive into researching.



Dr. Jill Carnahan - 08:02

And as long as it's safe, I think my job and your job is to assess the safety of some new thing. And so often, say, IV vitamin C. Well, there's a very low risk. Right. And there's a potential benefit. And we may not have huge randomized control trials, but when the safety is likely there, it's likely fairly benign. And then the potential upside is really great. I'm always willing to try new things. And I hear that in you too.



Dr. Pejman Katiraei - 08:25

Yeah. Yeah, absolutely. And, you know, I think, in a way, if. If I could rephrase what you're saying. We're, you know, as we kind of look into the frontier of medicine, right? And we take really, the science that's unfolding right now, and I think that's the most beautiful part of this work, right? We take the science that is getting published, and the papers are two to three years old, and we translate that into our medical model and into our practice. And with that, it's exactly what you said. Is it safe? Is it capable of causing harm? If there is any harm, how do you mitigate that harm? And ultimately, the patients will tell us to rest in terms of if it's helping or not and how much potential there is.



Dr. Jill Carnahan - 09:12

Amazing. And so often we have these large randomized control trials, but who really is that? N of one? Right. Like, it's also thinking of the patient. I've just continued to see. See, it's way better when we think of them as an individual and use the science, just like you said, but also really be open to their own genetics. And I'm sure you, like. I have had patients that are super sensitive to supplements, so I have to go really slow, and I have to change my protocols, and

we just have to be really flexible to deal with the complexity of the human that's in front of us. So I want to dive in.



Dr. Jill Carnahan - 09:41

One of the most exciting things about me being here with you today, I mentioned right before went on and that's we're going to discuss mold and fungus and all of that and how it interplays, especially with your pediatric population. I feel like, in my experience, I'll just give you a little backstory because I had Crohn's over 20 years ago, and one of the Big ahas in me completely being cured in a remission from Crohn's, like, zero symptoms. No sign for 20 years was the fungal microbiome. I had a immunocompromised system after my cancer, and I had severe fungal dysbiosis. No doctor was talking about it, no doctor was testing for it. And on my own, I discovered that. And through the use of herbal and other antifungals and treating that, I feel like that was probably 80% of my complete cure. Crohn's disease. Right.



Dr. Jill Carnahan - 10:25

Now, this makes sense, but do you want to describe what are you seeing in the pediatric populations as regard to not only yeast in the gut and the microbiome and mold and maybe start to pull this together for us? Because I think a lot of our listeners are like fungus. My doctor says that doesn't exist. Right?



Dr. Pejman Katiraei - 10:41

Yeah. And I think that is part of the problem. Right. So many providers are of this mindset of everyone has a little candida, everyone has a little mold, everyone lives in a little more. It's not a big deal. Right. And that is the prevailing mindset, not just in the conventional medical community where they completely discount these possibilities, but I would say also in some of the integrative circles. Right. Because they run stool tests. The stool test shows them a picture, and they run with that picture without realizing what else is getting missed. And one of the. I think the big problems is that up until recently, and I don't know if you've seen some of the new kind of microbiome tests that have come out by Dr. Vojdani, that we haven't had good tools.



Dr. Pejman Katiraei - 11:30

And so Dr. Vojdani, who's one of my mentors and just brilliant doc, who's probably invented half of the testing that we have in the autoimmune world, he basically has developed antibodies to look for fungal imbalances in the gut. And part of what I'm trying to do now is see how real that is in terms of its accuracy. But one of the big problems is we don't think about it enough. We don't talk about it enough. It doesn't always show up on urine tests, it doesn't show up on blood tests. So it's one of those things where it's like this thing that is causing a big problem, but we don't even see it. And a lot of people say, well, everyone has a little bit of candida. Isn't that a big deal? What is the big deal? And, well, mold can't colonize the gut. Right.



Dr. Pejman Katiraei - 12:18

A lot of people say that because the studies that have been done are all an adults who were perfectly healthy. And everyone presumes, well, if the adult healthy gut doesn't get colonized by molds or Candida doesn't really create a problem in the adult healthy gut, therefore it can never cause a problem in anyone. And when you just think about that statement, you're like, God, that's kind of silly, isn't it? Right? And like you, one of the things that I didn't realize was happening to myself, and I'll expand on my patients, was exactly this. So I, for the longest time had the uber sensitive gut. Like if I touched gluten, my digestion would fall apart and I would experience these high levels of

anxiety and all kinds of other odd things.



Dr. Pejman Katiraei - 13:06

And you know, like six to eight years ago, I was so easily triggered by anything and everything. And that constant, like mindfulness, constant breathing, five day, you know, silent retreats, all of those things to just keep my nervous system calm. And it was about two years ago I started really using antifungals in the kids. And I mean, some of the transformations that I was seeing were mind boggling. Where, you know, the quote unquote autistic kid that was totally disconnected from his family, aloof in the world, two weeks later comes and gives mom a massage and says, mom, I love you. You know, to the point where you're like, what? And one of the things that I experienced in myself was one, my digestion changed like in a month. And it has been more resilient than it's ever been.



Dr. Pejman Katiraei - 13:56

Not that I eat tons of gluten or dairy, but when I do, like, nothing happens. And my nervous system calmed down in the most remarkable way where it's like, I don't know if you've ever done a silent retreat, but like I walked out of a silent retreat and I was chill as can be. And after the antifungals, it was actually similar to that experience where I was so calm, things would happen, I'd be like, that's not worth responding to. You know, little things would happen that before would caused me to become anxious and fear and go into these loops of overthinking. Now it's like, oh, that's not a big deal. My, my relationship with my wife changed, my relationship with the world changed. And all of this highlights how much inflammation these fungi and molds can cause in the gut.



Dr. Pejman Katiraei - 14:50

And I think I'm so happy we're talking about this because unfortunately, I don't see this talked about enough.



Dr. Jill Carnahan - 14:57

I could not agree more. Like, that's why I was so excited to have this interview today because for me, it's like one of my inherent passions. Because it literally was my cure from Crohn's like that. There's no question that was integral. And I think, gosh, there's so many directions to go. One thing let's talk about. I love that you touched on diagnosis because for me, that's been this weird, mysterious thing. I actually teach at some of the groups, you know, that we both go to. And when I'm teaching fungal diagnosis, just like you said, I have to say you have to have a high index of suspicion. So maybe let's talk about first. How do these patients you mentioned some of it. Mood anxiety, super common. I see a massive increase or uptick in food sensitivities.



Dr. Jill Carnahan - 15:36

Often gluten is involved because to the body, that antigen can look similar to yeast. So they can kind of coexist and make one another worse. And then I see sometimes like a hangover, especially in adults because of that acetaldehyde. So maybe just diet. Let's first talk about what would a kiddo. You're dealing with kids. I'm dealing with adults. Things. Kids, what would they look like that would make you suspect yeast? And then we can go on to talk about how do we diagnose it.



Dr. Pejman Katiraei - 16:00

Sure. So, you know, the first presentation that really shows up in the kids is what you touched on, where their digestion starts getting funky. So either constipation or, you know, chronic loose, bowels, foul smelling stool. But the food sensitivities is one of the first telltale signs for me that something is awry. And there are actually some studies that have really shown how aspergillus in certain fungi and molds literally program the immune system in either its ability tolerate foods or become allergic and sensitized to foods. So when I see kids with eczema and they have to be avoiding 15 foods because if they do eat it, something awful happens and they've got other issues related to their gut.



Dr. Pejman Katiraei - 16:54

And then the skin is an extension of the gut, I think we can both agree in our world, that becomes one of the first signs that there's some kind of likely fungal imbalance in the gut.



Dr. Jill Carnahan - 17:06

Yeah. I would say until proven otherwise, eczema almost always has a fungal component. Would you agree?



Dr. Pejman Katiraei - 17:11

Absolutely. Yeah.



Dr. Jill Carnahan - 17:14

Now, interesting, because as you deal with kids or newborns, what I've seen, and I love your thoughts on this, is often I'll get I, I'm family medicine trained, so I can see birth to death, but I typically don't see under two years old at this point in my practice. But when I did, I would often see the newborns having cradle cap and fungal issues or even reflux or eczema. And guess what? The mom was colonized. Right. Do you want to talk about that first, just briefly? Because I think there is a connection obviously with a, you know, birth canal and the colonization of a baby at birth with mom's microbiome. But maybe for those who don't understand that connection. Do you want to just set us up with of how that might be connected?



Dr. Pejman Katiraei - 17:52

Yeah. So, I mean, all of these things, cradle cap, reflux, colic, are all signs of a immune and gastrointestinal immune disruption. And you know, a lot of times we don't think about colic as a immunological imbalance. Right. We think of, well, that's just a fussy baby, right? Babies just fuss. Except there's like the fussy baby that, you know, cries for 10, 15 minutes, you kind of shush them a little bit, they're fine. And then the kid that's screaming their head off, or three hours a day, the parents have to drive the kid around, rock them, they're not sleeping, kid takes 30 minute naps, wakes right on up. That's a immunological mast cell mediated inflammatory response that's dumping all kinds of histamine and other compounds into the nervous system of this kid, causing them to become totally wired. Reflux.



Dr. Pejman Katiraei - 18:44

There's reflux where babies spit up a tiny bit. And then there's reflux where mom has to avoid gluten, dairy, soy, and the kid is constantly throwing up. And they're talking about PPIs, right? And those, the more severe forms where the gut becomes disrupted are the babies that now they're like six months old, nine months old, they're still having the reflux and rarely is it by itself. It's like this constellation. In March, baby starts off with colic, then they go on to develop reflux, then they go on to develop eczema, then they start having food sensitivities and their digestion is never normal. And then the sad part is those are the kids that become, I believe, much more susceptible to ultimately heading into autism spectrum. Because if we ask, you know, what is autism spectrum, what drives some of it, obviously it's very complex.



Dr. Pejman Katiraei - 19:37

And by no means am I saying this is the only reason, but a huge part of my practice really is controlling the inflammatory response, rebalancing the inflammatory response in these kids who present with autism spectrum. And my goodness. And some of these kids, when we're able to do that, the transformations that they have in their sensory issues, their anxiety, their ocd, their rituals, the rigidity, the stimming, the food aversions, the sleep disturbances. So this laundry list of things that we associate with autism is all tied to the immune system, which is all tied to the fungal imbalances, which is all tied to what's going on in the gut.



Dr. Jill Carnahan - 20:21

Could not agree more. And I love talking about that, because when we go to the root cause, these things that seem so insurmountable and epidemic in our society actually have answers. Right? And we're not saying that every single kiddo with autism can be 100% healed, but you and I both see these massive transformations when we deal with the gut. So we talked about kind of how they present, and I couldn't agree more with you. And on the adult side of it, typically same thing. Insomnia, anxiety, depression, and gut issues, gas bloating, diarrhea, constipation, definitely mood disorders, sleep disorders, food sensitivities, Skin is a huge one, and adult acne. So kind of like both sides of it.



Dr. Jill Carnahan - 21:00

Let's go to diagnosis, because, again, I've been teaching this for a long time, and it's always like, patients or doctors in the audience will look at me kind of like, how do I do this? And what I've been talking about is, until we got, like, Dr. Bojani's test, which we can talk a little bit about today, I would say, you know, if you get anything on the stool that's fungal, you have to be suspicious, even if it's very low. And then frequently. And again, I'd love for you to talk about this. It's in the small bowel or it's in other parts of the gut, so you very frequently will not. If I just had to guess, I'd say maybe 20%, 10% of stool profiles are positive with someone with fungal issues. And typically, I'll find it on organic acids.



Dr. Jill Carnahan - 21:39

And then I also do IgG, IgM, IgA in the blood, which there's a lot of controversy about. But in my clinical experience, I do find a correlation. What's your thoughts on.



Dr. Pejman Katiraei - 21:51

I think you nailed it. And I've had a lot of discussions with various people around exactly where is this fungal

imbalance? And at least to my knowledge, I don't think we really know. But it definitely does not seem to be in the part of the colon. That would show up in the stool. And that's one of the big limitations of the stool studies. We're taking a sample of what comes out of our rear end, right. Which is the distal part of our colon, and we're sampling what's there. And to your point, if the imbalances are in the small bowels in the proximal colon, in areas that would not be reflective of that, it gets completely missed in a lot of the kids that I see, I would say the organic acid.



Dr. Pejman Katiraei - 22:34

So this urine biochemistry test that we do, 50% of the time doesn't show up. And I've had kids that were living in horrible amounts of mold. First, organic acid, totally normal. Second, organic acid, totally normal. Third, organic acid. Oh, my God. The fungal markers just blew up. And these are the fundamental issues with the testing we have. And even when you do the immune testing, at least in the little kids, what I find is, at least at the gut level, they seem to have some degree of immune suppression.



Dr. Jill Carnahan - 23:07

Yes.



Dr. Pejman Katiraei - 23:07

So they have IgG, suppression of IgG. They have sometimes disruption in IgA. So when we're looking for these immune markers as a reflection of the imbalance. Well, if the immune system is snoring and asleep and you're checking the immune system to see if there's a reaction, how are you going to find the imbalance? So it's one of these things where we think we have so advanced, sophisticated tools, but when we actually look at what they're able to detect clinically, we realize, like, we're kind of in this stone ages.



Dr. Jill Carnahan - 23:42

Yeah. I love that you explain that and that we agree, because I have seen that, and again, because of my own history with, like, curing Crohn's and having it be such a big deal, I realize I always say when I'm talking to patients and for those listening, yeast is opportunistic. We all have a tendency or proneness. We could have it. If we have a really strong, robust immune system, it's probably okay. So it's in the situation, which is why the mold yeast is so correlated. Because often a child or adult in a moldy home or a situation where mold starts to compromise those immune. Immune barriers create more histamine mast cell, which creates more permeability. The yeast starts to create this immune reaction, and then these people or kiddos have a big issue. But it.



Dr. Jill Carnahan - 24:22

It may start with a little bit of immune compromise on some level, whether it's poor diet, environmental toxicity, mold exposure, and then the yeast becomes an invasive or issue. And it sounds like that's kind of what you're seeing as well.



Dr. Pejman Katiraei - 24:35

Yeah. Hallelujah. Yeah, that's exactly what I see. And, you know, I would say with everything that we have introduced

into our environment, Right. The glyphosates and the poor diet and the chemicals and at least in for myself and, you know, several colleagues that I talked to since COVID you know, showed up on the stage like that, just threw another monkey wrench into the works. And essentially all of these things have created this essentially super susceptibility where nowadays, if kids are exposed to even what I think are moderate amounts of mold, And I suspect 10 years ago, these levels of mold were probably not as problematic. What I find is this super susceptibility that we're seeing in these kids. If there's any additional exposure, AKA now they're living in mold, they just don't have any fighting chance. And it's the saddest, saddest thing.



Dr. Pejman Katiraei - 25:37

It's heartbreaking in terms of what, what this is all doing to these kids.



Dr. Jill Carnahan - 25:42

Yeah. Gosh, I love that we're similarly seeing this and hopefully able to educate our colleagues as well, because I do think I now think of COVID as an immunocompromising infection. Right. And so whether it's a few months after or six months after, I almost always in. I'd say 80% of people, even healthy adults, see some sort of T cell dysfunction for more than a few weeks. Right. It's just kind of extended. So I think that added to the burden since we've seen this. So one thing, it's funny because I love Dr. Vogue, Johnny's work and I love that he's brought to light this wasn't. I wasn't anticipating us talking about this, but there's a brand new test that they've developed. I have just started using it, so I have very little experience, but that will actually test. Did you. Do you know about the.



Dr. Jill Carnahan - 26:24

I think it's called Biome burden.



Dr. Pejman Katiraei - 26:26

Yeah. Yeah.



Dr. Jill Carnahan - 26:27

Have you started that in clinical practice?



Dr. Pejman Katiraei - 26:29

So I have so far, I think four patients that I've tested and I've tested it in some of the older kids and so far, at least in the older kids, it's showing to be pretty accurate. And essentially it's, you know, are fungi plus or minus certain molds irritating the immune system, which means there's gut disruption. Right. The gut has to be disrupted. The immune system is now disrupted because of these fungal imbalances. And it's proving to be a pretty Handy tool.



Dr. Jill Carnahan - 26:59

Yeah, I'm super excited. I just started ordering it because I'm like, okay, this is because it's the same thing as we know this is an issue and we just happen to have the exact tools to say, you know, this is for sure. Now what we'll go on next to is treatments because in my experience, sometimes with just a high index of suspicion, with a patient consent, we might go ahead and do antifungals and see how they go. Where do you start with that? I would love to know. Herbs, medications, just kind of a little bit of an outline of kind of where you go with say, you know, someone has issues either based on a high clinical index of suspicion organic acids or a stool test, then where do you go next to treat them?



Dr. Pejman Katiraei - 27:36

So one of the things that I find is a lot of well intending providers jump to antifungals without kind of understanding the bigger picture of what is going on. And that includes exposure. So if a child is still living in mold and you throw antifungals at them, the probability of a good clinical outcome is lower. Not to say it can't improve, but it's lower and the probability of adverse issues is higher. And you know, when I, we have to look at these antifungals and when we say antifungals, I, I think we're both talking about, you know, the azoles, fluconazole, itraconazole, and if you want to get fancier, something like voriconazole. These azols are not just antifungals, they're immune modulators. And what I have seen is a child who is immunologically badly, I guess you can say compromised or highly inflamed.



Dr. Pejman Katiraei - 28:43

And usually with that, their gastrointestinal tract and their microbiome and microbiome, the fungal makeup of the gut are really badly disrupted in those kids. It's kind of like you're walking through a landmine field and if you just charge into that landmine field, you may set off some explosions which are not necessarily helpful. Whereas if you can identify the source and not all kids have active exposure, I have plenty of kids where they were exposed early on in life. Their gut got really badly disrupted and five years later they're still disrupted. But when you get rid of the exposure, that reduces the inflammatory response, right? It reduces the toxic load, it allows system of the child to become a little bit more stable. And once that happens, then the antifungals tend to work dramatically better.



Dr. Pejman Katiraei - 29:41

So for me, the first Step is, are they still living in mold? And when I assess, and I'm sure you do the same, like we don't use conventional testing. Right? You don't have someone come out, they take one air sample from the entire house and say, nope, you don't have any mold.



Dr. Jill Carnahan - 29:55

Right, Exactly.



Dr. Pejman Katiraei - 29:57

So getting an ermi, having a reputable person through someone like web, like ise, AI or somewhere where they actually go and really check. There's a company called the Dust Test, I, I, that's another option. But doing something that has a high sensitivity to pick up a problem and when it's like, okay, no, it's clear child is still having issues, but they're not like completely falling apart, that is when and I typically find the antifungals to be helpful. And in those cases, it's been amazing. Like, the kids with restrictive eating suddenly start eating and the kid that was only eating

three foods is now trying broccoli and salmon. And their sleep issues are gone and they're socializing better. And the kid that was standing alone, sitting alone in school, like totally isolated.



Dr. Pejman Katiraei - 30:52

And I mean, I can only imagine like how much anxiety these poor kids have to do that is now the kid that's, you know, going up and wanting to interact with other kids. I've had non verbal autistic kids that were just completely flipping out of their heads, aggressive, just highly reactive. Like three months later. Not just they're calm, but that same child who is still minimally verbal, is now attempting to go up to other kids in school and they're wanting to engage and play with other kids. And you know, all of this is just a reflection of how much this inflammation we're talking about is impacting the nervous systems of these kids. Whether we call it pans or autism or anxiety disorder or oppositional defiant disorder or ocd. You know, we throw these labels at these kids, like those labels actually mean anything.



Dr. Pejman Katiraei - 31:47

And underneath all of these labels, all of these diagnoses that were so quick to hand out is all of this inflammation. And if we reconstituted our understanding to say, you know what? This poor child is becoming overwhelmed. And they have all of these sensory things and all of these eating things and all of these sleep issues and they're constantly overwhelmed. The aggression they have is rooted inflammation. So if we can reconstitute or redefine what these things are and say, God is inflammation underneath all of this, which I believe it plays a huge role. And we use tools like itraconazole to Reduce that inflammation, rebalance the gut. I think we can make just so much progress in how we're able to help these kids. And that's just one tool.



Dr. Jill Carnahan - 32:38

Yeah. What a beautiful, compassionate way you just described that. Because I, I know just like you, I've had patients and their parents in the office and the parents are literally in tears because there's, you know, son or daughter maybe was aggressive or defiant or there's these things that like the whole family's traumatized by it and yet they know they love their child, they know they're suffering and they haven't been able to get a doctor to look past the psychiatric stuff. Right. Because sometimes they'll put them on antipsychotics or really heavy duty drugs or give them a diagnosis of bipolar or, you know, like you said, oppositional defiant. There's a lot of labels that are thrown around that hurts the child and hurts the family. And yes, it gives us this description box label to talk about in medicine what's going on.



Dr. Jill Carnahan - 33:23

But at the core, it's a family that's really disrupted by this kid's behavior. And like you, I'm sure have seen these parents that are just like beside themselves with what do we do? And so it's exciting to go to this level because it's the compassion of this poor child is really just suffering. And how can we relieve suffering at the end of the day? And that's exactly what you're talking about. And then it's not just the child's life that's changed, but the whole family.



Dr. Pejman Katiraei - 33:46

Right, exactly. And you know, it, their, their life has changed for the better, potentially for the rest of that child's life. And like, I think that's one of the things that's so important about this conversation is you keep highlighting it's not we're giving a medication that the kid has to take for the rest of their life. It's we're essentially resetting their entire gut access. Right. The microbiome. The microbiome, the entire gut immune system, the nervous system, immune

response. And once we do that reset and get it to hold, essentially we have created a new path. Right. A new future for this child. And like that's what makes me so excited about these conversations in this work.



Dr. Jill Carnahan - 34:31

Yeah, I couldn't agree more. So we talked about azoles, which are pretty heavy hitters. They're amazing when they're appropriate and I love that you see, said you really want to make sure they're out of exposure and all of the kind of instigating factors are at least addressed before you throw those at them. What else? I know that I really like nystatin. I would love to hear your thoughts on nystatin and then herbals. Obviously they have a place and I like to use them. But what's your thoughts on when. When is it appropriate to do herbals? Is that more of an early thing? And then we'll talk about mast cells too, because they come and all those. So maybe just the other options beside azoles. If someone either doesn't tolerate it or is there a place for other treatments in the beginning?



Dr. Jill Carnahan - 35:10

What's your thoughts on that?



Dr. Pejman Katiraei - 35:12

So there are absolutely things to do in the beginning. But part of what I try to teach and bring out there is a child's response, whether it's positive or negative is actually a powerful teacher. Right. If a child is not responding to an azol, there's a reason for it. Are they living in mold? Is their gut so badly disrupted that they can't tolerate that medication? Are they eating certain foods that are still perpetuating their inflammatory response? So when things work, it tells us something. When it doesn't work, it tells us something. And I think we still. A lot of providers are not yet at a point where they have this kind of understanding. And that's what I find so beautiful about these conversations, to really bring this out. I love nystatin. And I've.



Dr. Pejman Katiraei - 36:06

I've had some kids where just with nystatin, which is, you know, it doesn't absorb into the gut, it just treats candida. But just by doing that, I've had cases of bad eczema, like severe eczema go away in kids. Some kids, their digestive tract just. Just with nystatin does a reset. I've had a handful of kids where their autistic features started improving, so they were more calm, they were sleeping better, you know, to the point where I'm like, oh, my God, that's crazy.



Dr. Jill Carnahan - 36:32

Right? Right.



Dr. Pejman Katiraei - 36:33

When it comes to the botanicals, I. I still have a love affair with them. I was trained as a herbalist. I spent, you know, years learning about the plants, and I'm still enamored. But what. By what they can do. What I found is, especially in the kids with pans and autism, is their gastrointestinal tracts usually are so hypersensitized that using botanicals, which generally have very broad antimicrobial properties, is not very well tolerated. So biocidin, all of these things, which I use regularly as first line agents when the child is just starting that, if you want to call it gut rehabilitation or

detox, sometimes can trigger more problems than it solves.



Dr. Pejman Katiraei - 37:30

And one of the things you touched on earlier on, which I want to highlight, because it may have slipped by most of some of the viewers, is these kids could be reacting to anything and everything from citric acid, which is in 50% plus of the supplements, right? Probiotics, fish oils. So anything and everything can actually become a potential trigger. And half. Half the time when families come into my practice and they've got, like, a laundry list of supplements they're giving the kids. You know, I asked the parents, like, okay, which ones are you absolutely sure have made a difference? And usually there's like two or three. Like, we started this, and, oh, my God, my kid was different. And everything else I actually take away.



Dr. Pejman Katiraei - 38:15

And I've got to tell you, like, 30% of the time, just by me doing that, like, they're like, oh, my God, his anxiety is better. Oh, my God, she's sleeping better. And it was because the supplements that they were using to try to fix something was actually creating more of a problem. So we need to start by respecting and honoring that child and what their body is trying to tell us and really approaching this with white gloves to say, you know what? We're dealing with a very sensitive little body, and we don't know what they will tolerate. We don't know what this little body will want. So let's. Let's take one step at a time, try one thing and see how it goes, and then from there, move along.



Dr. Jill Carnahan - 38:59

Oh, I couldn't agree more. So this leads into our topic of mast cell, because at the root of many of these reactions is that overactive immune system which involves this primordial cell called the mast cell. Many of my listeners have already heard about that, but I feel like this is so crucial because essential oils and herbs are all beautiful, synergistic. I'm like you, I love plant medicine. I feel like it's crucial. However, often those are bigger triggers because there's so many more polyphenols and ingredients that they could just like you said, it could be if citrus. Or it could be, you know, a salicylate or an oxalate or one of these things that they react to that's in many of these herbal preparations. So mast cells, what's your perspective on where they fit into this?



Dr. Jill Carnahan - 39:43

Do you sometimes use natural or prescription things for mast cell activation? Does that help? Where does that fit in?



Dr. Pejman Katiraei - 39:51

Yeah, I mean, I'm sure, like you, I see mast cells as the central piece to not all of this, but a very large part of essentially what's perpetuating the problems. I believe that in the kids who were affected by mold and dampness, the reason why they stay sick for years afterwards is a chronic cyclical loop of mast cell activation, which, which the histamine releases, disrupts the gut. The mast themselves disrupt the gut. The mast cells drive the leaky gut. You touched on it earlier. The mast cells, when they become activated, actually trigger Candida to start morphing into its hyphae form. So Candida becomes aggressive. Right? They basically start, I guess you can say they nuke the gut. And by nuking the gut, they completely mess. Mess everything up. And I mean, they're just doing their job, right?

Dr. Pejman Katiraei - 40:53



They're just trying to protect the gut and they're. They're trying to keep us safe. But in the process, it's. It's like the military that starts, you know, dropping bombs on the border, and now there's no border, but they keep dropping bombs because they're. They're trying to protect the border. And that becomes this cyclical loop of inflammation, gut dysbiosis, leaky gut food intolerances, et cetera, et cetera, that I've seen, you know, go on for years after someone lived in mold. And now essentially, their gut is the source of all of their inflammation and toxicity. So it's a huge deal.



Dr. Jill Carnahan - 41:31

Yeah, well, you frame that really well because I couldn't agree more. That's like, I think of layers, it's always, especially in adults, like limbic activation, muscle activation, and then the fungal and bacterial kind of those layers just like you're describing, and out of the mold first. And so with the mast cell activ. Obviously we know antihistamines and things, but do you want to give the listeners just a clue of like, maybe a few herbals you like to use and maybe some prescriptions? And again, this depends on the situation. So they could ask their doctor more about those.



Dr. Pejman Katiraei - 42:00

Yeah, Skullcap is something that usually works pretty well. I'm a huge fan of the diamine oxidase enzymes, the DAO enzymes. I find that by reducing. So these are enzymes that. That we all have, except when we have gut inflammation, that inflammation starts degrading these enzymes in their capacity to break down histamine. So essentially we get histamine intolerance because our guts are disabling these enzymes. So by adding artificially or supplementing with these enzymes and reducing histamine, I find that is sometimes really helpful. Pea. Polaminoethalo, I think I said it correctly, I find to be really helpful for these kids. Luteolin, I know Dr. Theo Radies has talked a lot about it as a mast cell stabilizer could be very helpful. With the exception in some kids who are uber, uber sensitive, the polyphenols that's typically found in luteolin can actually trigger them. So.



Dr. Pejman Katiraei - 43:07

So on the supplement side, those are some of the things that I really like. Quercetin is something that could be helpful some of the time. I've got to tell you, maybe it's just the patients that I have started attracting and just the severity of their gut dysfunction. If you want to say I have started gravitating more and more towards some of the pharmaceuticals like ketotifen, which is a mast cell stabilizer and also degrades histamine or reduces histamine. Chromolin sometimes is really helpful. My favorite.



Dr. Jill Carnahan - 43:47

Hey, guys, just a quick pause to remind you that over@drjillhealth.com we have incredible solutions for your kids. Histamine issues or mast cell activation syndrome. Two of our apps, absolute bestsellers, are histamine blocker. That's as we discussed, the DAO enzyme inhibitor. If your child's gut is becoming more sensitive to foods, it's a great way to increase the DAO enzyme, which breaks down histamine. And our literally probably best seller on the site DrJo Health.com is histamine, or, sorry, hist Assist. Hist Assist is a natural histamine blocker. A great way to add to the arsenal to decrease histamine or mast cell activation. So head on over to drjillhealth.com and now we'll get back to our episode. Yes.



Dr. Pejman Katiraei - 44:39

Yeah, in some of the kids. So going back to those kids that are just immunologically unstable and, you know, I had probably 2010 to 20% of the kids in my practice where I would do everything. I would try the supplements, I would try the botanicals, I would try the antifungals. They weren't living in mold, but it was as soon as you would touch their gut with anything, it would just blow up. And I got to a point where I started looking at biologics, the pharmaceuticals they use for colitis, because I was so desperate. And I got turned on to the peptides. And my favorite combination right now is actually a combination of lorazotide, which is really great for getting the gut to start healing right, reducing intestinal permeability. Reducing gut inflammation. And then that combined with actually kpV.



Dr. Jill Carnahan - 45:33

Yes.



Dr. Pejman Katiraei - 45:33

And one of the things that's been so fascinating is especially in some of these kids with pans or autism, when I measure their alpha msh. So Alpha MSH is this pituitary hormone that's produced that actually has some crazy anti inflammatory properties. It regulates the microglia, it regulates the mast cells. I mean it does so much as anti inflammatory compound. And when I check the alpha MSH levels in some of these kids, like there, it's in the tubes, like, you know, it's like you look at the levels, you're like, oh my God, what the heck is going on here? In, in some of those kids? Because KPV is basically a derivative of alpha msh.



Dr. Pejman Katiraei - 46:19

And my naive understanding of this is essentially has some of the anti inflammatory effects that alpha MSH has, except it's obviously not the full pituitary hormone in some of these kids. By doing this combination, within two or three weeks, it's the wildest thing. Like their entire immune system resets, guts, their gut becomes more stable. Neurologically, they're more stable, they start sleeping better, they start eating better. And then a month and a half later when we bring in the antifungals or the botanicals or whatever else, like their tolerance for everything else is just so much better. I don't know if you've seen that with the peptides.



Dr. Jill Carnahan - 47:01

I'm just smiling because I so love that. So back in the days of Richie Shoemaker and Sears, which was kind of the original mold research, we've come a long way since then and I know, don't, I don't agree with everything on that platform. However, there's something that is important there that I remember learning and it was this msh, which was frequently low or zero, almost undetectable after mold exposure. When I started diving into the research, in mice models, they would induce Crohn's and colitis by depleting msh. So there was a very clear correlation. They would in lab rats literally cause a Crohn's by blocking msh. So it makes so much sense that you're saying that, right? I know I'll have to share the studies with you later or if you're listening, I'll try to link them here in show notes.



Dr. Jill Carnahan - 47:42

But as I realized, like, oh, this is a huge component of intestinal permeability and the tight junctions. And then what you mentioned with the peptide. So I did notice it, notice that, or know that connection to KPV and msh. That makes so much sense. And lorazotide is this. It was studied for celiac disease because it's anti zonulin. So zonulin is a little trapdoor that opens and close the cells, I think the paracellular intracellular junctions between these enterocytes that

line the gut. Again, I'm saying this for the listeners because you and I know this. So this, like leaky gut that happens is often incited by. By the inflammation from celiac or Crohn's or colitis. And zonulin is that trapdoor. So when that level is elevated, this lozotide can kind of block that thing. And really probably our best option for leaky gut, actual treatment.



Dr. Jill Carnahan - 48:30

And it was going to go to market for celiac disease, and the drug company that had bought the rights to it decided there wasn't enough population for this to be a blockbuster. So they kind of stopped that research line and now it's available in compounding pharmacies. But I love that backstory because those two together makes so much sense. It just makes a ton of sense. I use it too sometimes. I'll add BPC157 to that mix as well. But that's really. And I love this information for the listeners because I think it's cutting edge. And if, like you, I'm like, okay, we can use like glutamine, that's like baseline. Right. And then maybe like a bovine immunoglobulins or colostrum. But now I feel like the peptides are like way up here as far as the power. Right. Of what they can do.



Dr. Pejman Katiraei - 49:09

Yeah, yeah. And, you know, it's not to say that everyone needs peptides, right? I would say that I only go to them 10% of the time.



Dr. Jill Carnahan - 49:20

I agree.



Dr. Pejman Katiraei - 49:21

So it's not like everyone should go running and get this. And you absolutely need to find the provider that's well trained. You know, you don't just go buy this off the shelf. You really need to work with someone that understands it. But if we understand what our patients are telling us, right? And like, part of what I love about the kids is if we can understand what they are trying to communicate to us, the kids, through their bodies and their symptoms and their challenges, literally tell us like, hey, this is what's going on in my life. Little body. And then with that, when we can do the testing, like checking alpha msh, which you can do through any lab, right? You can do it through LabCorp. You can do it through request, you could do it anywhere.



Dr. Pejman Katiraei - 50:05

By, by doing these simple tests, we can start understanding, like, oh, my God, like, I had no idea that they had done these studies in the rats. But you know, like, by putting these pieces together and say, oh my God, this kid has all of these things and they, they have a diagnosis of pans, right? They, they look like autism, blah, blah. Oh my God, look, this hormone that's a powerful immune regulator is non existent. And this is why this child is struggling. Like, this is what's so cool about all of this, right? We get to make such a difference.



Dr. Jill Carnahan - 50:40

In fact, it's just coming to mind is because I've been teaching some of this stuff because I always love to dive and I

keep learning from people like you too. But there was a study, I think a China probiotic company was trying to create a probiotic that created MSH in the gut. I don't know where that ever went to. But of course it would make sense that could be potentially beneficial if we could induce the production in the gut. And again, I don't know where that's at. I don't know if it's available. I don't think it is yet. But I saw a study a couple years ago about that. So this makes so much sense. And it's fascinating when we have these links because we've known for a long time that mold can drop msh.



Dr. Jill Carnahan - 51:12

And then we're like, oh, and that's a piece of the leaky gut puzzle. And like this whole thing kind of starts to come together, maybe last little bit before we wind up is probiotics. I would love to hear your thoughts, because in my experience, we always think, and especially there's so much marketing on probiotics, this billion of this, and that is the best thing. And in my experience, a lot of my patients react to probiotics, the wrong ones. So I'm very careful about how I use them. And I think Dr. Mark Pimentel's latest research on SIBO, the consensus is actually, until you get treated SIBO, which is a different thing that we're talking about, you don't use probiotics. So there are some evidences that suggest. What's your thought on probiotics?



Dr. Pejman Katiraei - 51:53

I think you said it perfectly. I mean, I have been a huge fan of probiotics forever, but to your point, I just kept seeing the children that I was treating and it's like, well, I'm going to use *Saccharomyces boulardii* because it improves secretory IGA in the gut and reduces gut inflammation and all of these things. And I would go in there so excitedly treating, and then all of a sudden it's like, why is my patient getting worse? Oh, it's because, you know, it's because of what I did. At this point, I use probiotics as kind of step number three. So I've treated the gut, we've done the antifungals, we've kind of done an immune reset. The child is now in a stable place. They're doing well. Their gut is healthier.



Dr. Pejman Katiraei - 52:44

I think at that stage, probiotics are, you know, awesome, because now the children can get all of the benefits from the. The probiotics and all the wonderful things that they do early on. It's like pouring rocket fuel in a house fire and then wondering why your entire house just exploded.



Dr. Jill Carnahan - 53:04

Oh, gosh. Like I said, I love talking to you. So aligned. And there's so few that really understand it at this level. Speaking of that, I want to just mention again, because a lot of docs, and a lot of docs listen to us too, don't realize *Saccharomyces Boulardi*, you mentioned, that's a yeast. If someone has a reaction, especially with this new testing that Dr. Vojdani does, we maybe haven't had all the tests. There is anti *saccharomyces* antibody you can do on LabCorp Quest, and I do that because if they have antibody to that, they're not going to tolerate that probiotic. Right.



Dr. Jill Carnahan - 53:34

And then second beta glucans, amazing immune modulators, like maybe one of the best tools we have to upregulate T cell function and natural killer cells, however, they're made from yeast cell walls, so there is a subset of population that will not do well on them. And I love mentioning that because I think the average doctor maybe doesn't know, oh, this is supposed to be good Floristor after your antibiotic. And for a kiddo who has the yeast issues, it's a big deal, right?



Dr. Pejman Katiraei - 53:59

Yeah. Yeah. And you know what's. What's really spooky is I checked the *Saccharomyces cerevisiae*. So ask antibodies, which they usually use to diagnose Crohn's and colitis. I check them on all the kids, and what's really sad is I'd say 25, 30% of my kids are positive. You know, do they have Crohn's? No, but they're immunologically so reactive to these yeasts that they're. They're Kind of showing up now with these Crohn's markers and, you know, to add to everything. Chlorella, like when. When we look at how many different things citric acid is derived from yeast. So the immune system, as far as it's concerned, is seeing yeast chlorella, which a lot of people use to detoxify, actually has some antigenic crossover with, I think, Candida.



Dr. Pejman Katiraei - 54:54

So this is why it's so important to just be careful and go slow and not just dump a million things. And, you know, as I'm saying this, I'm thinking of myself, you know, eight years ago, where I would just give people a laundry list of like, 16 supplements. We're going to fix everything at one time and everything's going to better. Until my patients hated me and I made them worse.



Dr. Jill Carnahan - 55:17

No, I love. This is such a great conversation because there's so few docs that really understand at this level. And what I see now, sadly on, you know, social media, there's influencers, there's coaches that just go and take a lab test and use a lab interpretation and try to give these patients advice. And without the clinical background and experience and really knowledge of this, they can do more harm than good. So if you're out there listening, just be careful. Use your judgment, you know, use your kids. But I think there's a lot of bad advice being given because people don't really understand the complexity. And for me, it's just like respecting the body's this incredible organism and respecting the patient's knowledge. When they're, like, when they tell me, you know, doc, I react to this. I listen.



Dr. Jill Carnahan - 55:54

You know, I like, okay, I don't know really why that is, but I'm just going to trust that you know your body better than I do. So. Oh, my gosh, this has been absolutely amazing. I knew it would. You are a wealth of knowledge and you're such a gift to the world in your practice and all that you do. And any lecture I've ever heard, it's always like, yes, speak it. Because you and I, you know, have come from that same background. If people want to find out more, become a patient in your clinic. Where can they find you? What's your website? Give us a little information.



Dr. Pejman Katiraei - 56:22

So the clinic website is Holistic Kids with a W. So W H O L I S T. I see kids. I'm on Instagram also at Holistic Kids. And hopefully in the next year we'll have a book out that really gets into some of these details because there's so many kids out there who are struggling. I mean, you see it, too. There's so many kids out there who are struggling. There's so many kids who can't learn. There's so many kids who just can't socialize. So many kids are getting blamed for their behaviors because they lose the ability to regulate. But because they're not autistic, everyone thinks, well, you just need to manage your emotions better or parents need to parent better even though the child is inflamed and toxic. And we're missing all of this. And, you know, there's some really good information coming out.



Dr. Pejman Katiraei - 57:18

I don't think we talk enough about how dampness and mold is causing a lot of this inflammation. So, one, I'm grateful for everything you're doing and getting this information out and, you know, to do my little part. Hopefully in the next year we'll have that book out to really bring a lot of these things together and help a lot of families work with whoever they want to facilitate the healing for their kids.



Dr. Jill Carnahan - 57:45

I cannot wait. I am. I am your biggest fan. And we will have to do another podcast because when that's out. So everyone stay tuned for that. Thank you again for being a curious, compassionate, insightful healer. It's. It's absolutely a joy to have you on the podcast.



Dr. Pejman Katiraei - 57:59

Well, it's my delight. And I mean, gosh, like, I. I could just say the same for you. I. I so respect you and honor you as a person, as a healer, as a doctor. And, you know, just thank you for doing this incredible work.



Dr. Jill Carnahan - 58:14

Hey, everybody, hope you enjoyed that episode with Dr. K. Full of great information on the microbiome, how to treat what your kiddo might be suffering from, if they have mood disorders, sleep disorders, or food sensitivities, please like and subscribe. It helps us reach more people. If you found this helpful or someone you know might be helped by this information, will you please share this episode with them and spread the word? And as always, you can find us here on YouTube, Spotify, iTunes, wherever you listen or watch podcast. And we look forward to seeing you next week with another episode of Resiliency Radio. Until then, take care of.